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| EXAMINER | | | | |
| FAULK, DEVONAE | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/511,807

Applicant(s)

BREEBAART ET AL.

Examiner

DEVONA E. FAULK

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13, 14 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 14, 18-20, 25, 26 and 29 is/are rejected.
- 7) ☒ Claim(s) 21-24, 27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/2/09 have been fully considered but they are not persuasive.
2. The applicant asserts that the prior fails to teach of "and a function of increasing with the dissimilarity of the multi-channel output signal". The examiner asserts that the prior art does not have to read on the newly added claim language. Claims 13 and 14 recite " wherein the measure of similarity is selected from the group consisting of a value of a cross-correlation function at a maximum of said cross-correlation function of the multi-channel output signal and a function of increasing the dissimilarity of the multi-channel output signal". The claim recites selected from, therefore the newly recited claim language is an option and the prior art reads on the first option of " a value of a cross-correlation function at a maximum of said cross-correlation function of the multi-channel output signal".
3. Regarding claims 18, the applicant asserts that Baumgarte fails to teach on the decorrelator unit limitation, particularly the "decorrelated version of the composite digital signal ". The examiner asserts that the auditory scene synthesis 704 reads on the decorrelator unit limitation.
4. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

5. Claims 1-12,15-17 are cancelled.

Claim Objections

6. Claims 21-24,27,28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 13-14,18-20,25-26,29 are rejected under 35 U.S.C. 102(e) as being anticipated by Baumgarte et al. (US 2003/0035553).

Regarding claim 13, Baumgarte discloses a method of decoding an encoded multi-channel audio signal, the method comprising:

obtaining a monaural signal from the encoded audio signal, the monaural signal comprising a combination of at least two channels (1206 module of the receiver obtains the mono audio signal from the encoded audio signal, Figure 12; ¶ 0084, Figure 12; page 7, ¶ 0081),

obtaining a set of spatial parameters from the encoded audio signal, the set of spatial parameters including a parameter representing a measure of similarity of waveforms of the at least two audio channels (PCSC decoder 1209, Figure 12, ¶ 0084, ¶ 0074 ; encoder 1201 is implemented based on transmitter 1000 which applies a TF transform to each input channel to convert the signals from the time domain to the frequency domain, frequency is a function of time; ¶0073,0082),

and generating a multi-channel output signal from the monaural signal and the spatial parameters (PCSC decoder 1209 generates a multi-channel output; Figure 12, ¶ 0084), the set of spatial parameters including a parameter representing a measure of similarity of waveforms of the multi-channel output signal, wherein the measure of similarity is selected from the group consisting of a value of a cross-correlation function at a maximum of said cross-correlation function of the multi-channel output signal and a function of increasing with the dissimilarity of the multi-channel output signal (in transmitter 1000 each pair of frequency bands for left and right audio signals are compared to generate one more spatial cues (e.g. an ILD value, an ITD value and/or an HRTF (¶ 074); for each frequency band, a cross-correlation between the converted left and right audio signals is estimated; page 6, , ¶ 0074 that the maximum of the cross-correlation is used).

Regarding claim 14, Baumgarte discloses a decoder for decoding an encoded multi-channel audio signal, the decoder comprising:

means for obtaining a monaural signal from the encoded audio signal, the monaural signal comprising a combination of at least two channels (1206 module of the receiver obtains the monaural signal from the encoded audio signal , Figure 12; ¶ 0084),

means for obtaining a set of spatial parameters from the encoded audio signal , the set of spatial parameters including a parameter representing a measure of similarity of waveforms of the at least two audio channels(PCSC decoder 1209, Figure 12, ¶ 0084, ¶ 0074; encoder 1201 is implemented based on transmitter 1000 which applies a TF transform to each input channel to convert the signals from the time domain to the frequency domain, frequency is a function of time; ¶0073,0082),

and means for generating a multi-channel output signal from the monaural signal and the spatial parameters (PCSC decoder 1209 generates a multi-channel output ; Figure 12, ¶ 0084), the set of spatial parameters including a parameter representing a measure of similarity of waveforms of the multi-channel output signal, wherein the measure of similarity is selected from the group consisting of a value of a cross-correlation function at a maximum of said cross-correlation function of the multi-channel output signal and a function of increasing with the dissimilarity of the multi-channel output signal (in transmitter 1000 each pair of frequency bands for left and right audio signals are compared to generate one more spatial cues (e.g. an ILD value,

an ITD value and/or an HRTF (¶ 074); for each frequency band, a cross-correlation between the converted left and right audio signals is estimated; page 6, , ¶ 0074 that the maximum of the cross-correlation is used).

18. (New) Decoding apparatus for decoding an encoded digital audio signal comprising at least a first and a second digital audio signal component, which have been encoded into a

composite digital signal (X) and a parameter signal (P), the decoding apparatus comprising:

an input unit (210) for receiving a transmission signal (encoder 1201, Figure 12, ¶ 081),

a demultiplexer unit (210) for retrieving the composite digital signal and the parameter signal from the transmission signal (encoder 1201, Figure 12, ¶ 081),

a decorrelator unit (401) for generating from the composite digital signal a decorrelated version of the composite digital signal (auditory scene synthesis 704, Figure 7, ¶ 0067 , ¶ 0074),

a matrixing unit (403) for receiving the composite digital signal and the decorrelated version of the composite digital signal and generating therefrom a replica of the first and second digital audio signal component (auditory scene synthesis 704, Figure 7, ,),

the replica of the first digital audio signal component being a linear combination of the composite digital signal and the decorrelated version of the composite digital signal, using multiplier coefficients that are dependent of the parameter signal (implicit,

the replica of the second digital audio signal component being a linear combination of the composite digital signal and the decorrelated version of the composite digital signal, using multiplier coefficients that are dependent of the parameter signal (implicit).

Regarding claim 19, Baumgarte discloses that the parameter signal comprises a first parameter signal component (r) which is a measure of the similarity of waveforms of the replicas of the at least first and second digital audio signals, said measure of similarity corresponding to a value of a cross correlation function between the replicas of said at least first and second digital audio signal components, said value being substantially equal to the maximum of said cross correlation function (page 6, ¶ 074; the maximum of the cross-correlation is used).

All elements of claim 20 are comprehended by the rejection of claim 19 (See page 6, ¶ 074 .

Regarding claim 25, Baumgarte discloses that the decorrelator unit is adapted to delay the composite digital signal so as to obtain the decorrelated composite digital signal (¶ 067, ¶ 074)..

All elements of claim 26 are comprehended by the rejection of claim 25.

All elements of claim 29 are comprehended by Baumgarte as applied above to claims 13,14.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/
Primary Examiner, Art Unit 2614